



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Gopinathan *et al.*

Appl. No. 10/085,071

Filed: March 1, 2002

For: **Methods and Systems for DSP-
Based Receivers**

Confirmation No. 1409

Art Unit: 2662

Examiner: (to be assigned)

Atty. Docket: 1875.1280001

First Supplemental Information Disclosure Statement

Commissioner for Patents
Washington, D.C. 20231

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Technology Center 2600

Sir:

Listed on accompanying Form PTO-1449 are documents that may be considered material to the examination of this application, in compliance with the duty of disclosure requirements of 37 C.F.R. §§ 1.56, 1.97 and 1.98.

Where the publication date of a listed document does not provide a month of publication, the year of publication of the listed document is sufficiently earlier than the effective U.S. filing date and any foreign priority date so that the month of publication is not in issue. Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This statement should not be construed as a representation that a search has been made, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith.

Applicants have checked the appropriate boxes below.

- ☐ 1. Statement under 37 C.F.R. 1.704(d). Each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application and this communication was not received by any individual designated in 37 C.F.R. § 1.56(c) more than thirty days prior to the filing of this information disclosure statement.
- ☒ 2. Filing under 37 C.F.R. § 1.97((b). This Information Disclosure Statement is being filed within three months of the date of filing of a national application other than a continued prosecution application (CPA), OR within three months of the date of entry of the national stage as set forth in 37 C.F.R. § 1.491 in an international application, OR before the mailing date of a first Office Action on the merits OR before the mailing of a first Office Action after the filing of a request for continued examination under 37 C.F.R. § 1.114. No statement or fee is required.
- ☐ 3. Filing under 37 C.F.R. § 1.97(c). This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection, or Notice of Allowance, or an action that otherwise closes prosecution in the application.
 - ☐ a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months

prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).

- ☐ b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).
- ☐ c. Attached is our PTO-2038 Credit Card Payment Form [OR] Check No. _____ in the amount of \$ _____ in payment of the fee under 37 C.F.R. § 1.17(p).
- ☐ 4. Filing under 37 C.F.R. § 1.97(d) This Information Disclosure Statement is being filed more than three months after the U.S. filing date and after the mailing date of a Final Rejection or Notice of Allowance, but before payment of the Issue Fee. Enclosed find our Check No. _____ in the amount of \$ _____ in payment of the fee under 37 C.F.R. § 1.17(p); in addition:
 - ☐ a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).
 - ☐ b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).

- ☐ 5. The document(s) was/were cited in a search report by a foreign patent office in a counterpart foreign application. Submission of an English language version of the search report that indicates the degree of relevance found by the foreign office is provided in satisfaction of the requirement for a concise explanation of relevance. 1138 OG 37, 38.
- ☐ 6. A concise explanation of the relevance of the non-English language document(s) appears below:
- ☐ 7. Copies of the documents were cited by or submitted to the Office in an IDS that complies with 37 C.F.R. § 1.98(a)-(c) in Application No. _____, filed _____, which is relied upon for an earlier filing date under 35 U.S.C. § 120. Thus, copies of these documents are not attached. 37 C.F.R. § 1.98(d).

It is respectfully requested that the Examiner initial and return a copy of the enclosed PTO-1449, and indicate in the official file wrapper of this patent application that the documents have been considered.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



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Date: 3-14-03

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FORM PTO-1449 <u>FIRST SUPPLEMENTAL INFORMATION</u> <u>DISCLOSURE STATEMENT</u>	ATTY. DOCKET NO. 1875.1280001	APPLICATION NO. 10/085,071
	APPLICANT Gopinathan et al.	
	FILING DATE March 1, 2002	GROUP 2662

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA1						
	AB1						
	AC1						
	AD1						
	AE1						
	AF1						
	AG1						
	AH1						
	AI1						
	AJ1						
	AK1						

FOREIGN PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL1						Yes No
	AM1						Yes No
	AN1						Yes No
	AO1						Yes No
	AP1						Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)			
AR	<u>1</u>	Black, Jr., W. and Hodges, D., "Time Interleaved Converter Arrays," <i>IEEE Journal of Solid-State Circuits</i> , IEEE, Vol. SC-15, No. 6, December 1980, pages 1022-1029.	
AS	<u>1</u>	Conroy, C. et al., "An 8-b 85-MS/s Parallel Pipeline A/D Converter in 1- μ m CMOS," <i>IEEE Journal of Solid-State Circuits</i> , IEEE, Vol. 28, No. 4, April 1993, pages 447-454.	
AT	<u>1</u>	Dally, W. and Poulton, J., "Transmitter Equalization for 4Gb/s Signalling," <i>Proceedings of Hot Interconnects IV</i> , Palo Alto, CA, 1996, 10 pages.	

EXAMINER	DATE CONSIDERED
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EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.



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U. S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB- CLASS	FILING DATE
	AA2						
	AB2						
	AC2						
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FOREIGN PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION
	AL2						Yes No
	AM2						Yes No
	AN2						Yes No
	AO2						Yes No
	AP2						Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)			
AR	2	Ellersick, W. et al., "A Serial-Link Transceiver Based on 8GSample/s A/D and D/A Converters in 0.25 μ m CMOS," <i>IEEE International Solid-State Circuits Conference</i> , IEEE, 2001, page 58-59 and 430.	
AS	2	Ellersick, W. et al., "GAD: A 12-GS/s CMOS 4-bit A/D Converter for an Equalized Multi-Level Link, <i>Symposium on VLSI Circuits Digest of Technical Papers</i> , 1999, pages 49-52.	
AT	2	Eklund, J-E. and Gustafsson, F., "Digital Offset Compensation of Time-Interleaved ADC Using Random Chopper Sampling," <i>IEEE International Symposium on Circuits and Systems</i> , IEEE, May 28-31, 2000, pages II-447-450.	

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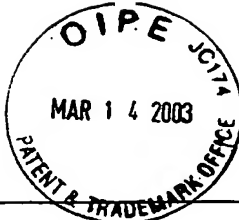
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA3						
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FOREIGN PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL3						Yes No
	AM3						Yes No
	AN3						Yes No
	AO3						Yes No
	AP3						Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)			
AR	<u>3</u>	Fu, D. et al., "A Digital Background Calibration Technique for Time-Interleaved Analog-to-Digital Converters," <i>IEEE Journal of Solid-State Circuits</i> , IEEE, Vol. 33, No. 12, December 1998, pages 1904-1911.	
AS	<u>3</u>	Guizani, M. and Al-Ali, A., "PC-Compatible Optical Data Acquisition Unit," <i>Instrumentation and Measurement Technology Conference</i> , IEEE, May 10-12, 1994, pages 1099-1102.	
AT	<u>3</u>	Jenq, Y-C., "Digital Spectra of Nonuniformity Sampled Signals: A Robust Sampling Time Offset Estimation Algorithm for Ultra High-Speed Waveform Digitizers Using Interleaving," <i>Transactions on Instrumentation and Measurement</i> , IEEE, Vol. 39, No. 1, February 1990, pages 71-75.	

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U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB- CLASS	FILING DATE
		AA4					
		AB4					
		AC4					
		AD4					
		AE4					
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		AG4					
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		AI4					
		AJ4					
		AK4					

FOREIGN PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION
		AL4					Yes No
		AM4					Yes No
		AN4					Yes No
		AO4					Yes No
		AP4					Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)			
	AR	4	Mason, R. and Taylor, J.T., "High-Speed Electro-Optic Analogue to Digital Converters," <i>IEEE International Symposium on Circuits and Systems</i> , IEEE, 1993, pages 1081-1084.
	AS	4	Niewczas, P. et al., "Error Analysis of an Optical Current Transducer Operating with a Digital Signal Processing System," <i>IEEE Transactions on Instrumentation and Measurement</i> , IEEE, Vol. 49, No. 6, December 2000, pages 1254-1259.
	AT	4	Petraglia, A. and Mitra, S., "Analysis of Mismatch Effects Among A/D Converters in a Time-Interleaved Waveform Digitizer," <i>IEEE Transactions on Instrumentation and Measurement</i> , IEEE, Vol. 40, No. 5, October 1991, pages 831-835.

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DISCLOSURE STATEMENT**ATTY. DOCKET NO.
1875.1280001APPLICATION NO.
10/085,071APPLICANT
Gopinathan et al.FILING DATE
March 1, 2002GROUP
2662**U.S. PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB- CLASS	FILING DATE
	AA5						
	AB5						
	AC5						
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	AE5						
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	AJ5						
	AK5						

FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION
	AL5						Yes No
	AM5						Yes No
	AN5						Yes No
	AO5						Yes No
	AP5						Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

	AR	5	Sauer-Greff, W. et al., "Maximum-Likelihood Sequence Estimation of Nonlinear Channels in High-Speed Optical Fiber Systems," April 6, 2001. Retrieved from the Internet: <URL: http://www.ftw.at/Dokumente/010406a.pdf , 29 pages.
	AS	5	Williamson, R.C. et al., "Effects of Crosstalk in Demultiplexers for Photonic Analog-to-Digital Converters," <i>Journal of Lightwave Technology</i> , IEEE, Vol. 19, No. 2, February 2001, pages 230-236.
	AT	5	Yang, C-K., "Design Techniques for High-Speed Chip-to-Chip Links," Retrieved from the Internet:<URL: http://web.doe.carleton.ca/courses/97578/topic5/Tutorial_SerialLink.pdf , 31 pages.

EXAMINER

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ATTY. DOCKET NO.
1875.1280001

APPLICATION NO.
10/085,071

APPLICANT
Gopinathan et al.

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2662

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB- CLASS	FILING DATE
	AA6						
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	AL6						Yes No
	AM6						Yes No
	AN6						Yes No
	AO6						Yes No
	AP6						Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

AR	<u>6</u>	Yang, C-K. et al., "A Serial-Link Transceiver Based on 8-Gsamples/s A/D and D/A Converters in 0.25- μ m CMOS," <i>IEEE Journal of Solid-State Circuits</i> , IEEE, Vol. 36, No. 11, November 2001, pages 1684-1692.
AS	<u>6</u>	Zuoxi, T., "Implementation of a Digital Multibeam Receiver Based on TMS320C80 for Laser Optoacoustic Remote Sensing," <i>Proceedings of ICSP2000</i> , IEEE, 2000, pages 2082-2084.
AT	<u>6</u>	

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